

DROUIN WWTP – COMMITTING TO SUSTAINABLE ENERGY SAVINGS WITH AEROSTRIP® DIFFUSERS

CASE STUDY



CLIENT'S NEED

Gippsland Water are currently upgrading Drouin WWTP to have the capacity to treat 4.2 MLD of sewage from the township of Drouin. As part of the new Membrane Bioreactor (MBR) Activated Sludge process, Hydroflux EPCO were contracted to design and supply an efficient and sustainable aeration system.

An efficient aeration system is a major asset to any WWTP, and for this plant the use of AEROSTRIP® Fine Bubble Diffusers will result in greater than 25% savings in energy compared to other diffuser types, plus additional O&M savings with the world leading AEROSTRIP® diffuser membrane life of greater than 12 years.

OUR SOLUTION

AEROSTRIP® diffuser modules can be arranged in a wide range of layouts in the aeration tanks. This way the tank floor coverage can be maximised and biological activity in the aeration tanks can be completely optimised.

With increasingly stringent treated effluent quality requirements being enforced by EPA's across Australia, Hydroflux EPCO offers performance guarantees for the Standard Oxygen Transfer Efficiency (SOTE) that can be achieved for an AEROSTRIP® diffuser system. An in-house Clean Water Test was performed to ASCE Standards for the Drouin WWTP project to prove the performance of

the AEROSTRIP® diffusers prior to delivery.

The Results for the Drouin AEROSTRIP® diffusers exceeded the guaranteed SOTE by over 10%. The high oxygen transfer rates provided by the AEROSTRIP® diffusers will allow Drouin WWTP to meet EPA requirements for Total Nitrogen in the treated effluent.

Membrane fouling is a common issue that critically limits the prolonged efficiency of many types of diffusers and drastically increases operating costs. AEROSTRIP® diffusers mitigate fouling by bumping the airflow at regular intervals and releasing any built-up sediments from the membrane pores. This cleaning technique can be automated and means that the AEROSTRIP® diffusers operate for more than 12 years. A periodic acid clean can also be performed whilst the AEROSTRIP® diffusers are operating as a more rigorous cleaning method for removing fouling by calcium and organic materials.

The superior proprietary polyurethane material used to manufacture the AEROSTRIP® diffuser membrane provides a consistent fine bubble size for years of operation. The AEROSTRIP® diffusers operate at high efficiency for their entire 12 or more year lifespan.

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THE OUTCOME

Installing AEROSTRIP® diffusers demonstrates a serious commitment to lowering the WWTP's carbon footprint. With the aeration process contributing to a large proportion of a WWTP's energy requirements, significant energy savings can be made by utilising the incredible oxygen transfer rates afforded by the most efficient aeration diffuser on the market.

By choosing AEROSTRIP® Fine Bubble Diffusers, Gippsland Water has opted for an efficient, sustainable aeration solution that is both robust and well proven in numerous Australian applications.

| Item | Value |
|---------------------|-------------------------------------|
| End User | Gippsland Water |
| Site | Drouin WWTP |
| Number of Diffusers | 108 |
| Diffuser Type | AEROSTRIP® Q3 |
| Diffuser Mount | Liftable Frame |
| Peak SOTR | 224 kgO ₂ /h |
| SOTE | 43.89% measured in clean water test |
| Commissioned | TBA 2021 |